Listing of the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

1. (Previously presented) A process for an olefin polymerization comprising (a) starting up the polymerization reaction in a gas-phase fluidized-bed reactor using a catalyst comprising a metallocene to produce a start-up polyolefin having a melt flow rate greater than 4.5 g/10 min; and (b) continuing the polymerization reaction and gradually decreasing the melt flow rate of the polyolefin to less than 4 g/10 min, wherein the melt flow rate is measured at 2.16 kg and 190°C in accordance with ISO 1133, and wherein said start-up phase of step (a) has a duration of 30 minutes to 30 hours.

2. (Previously presented) The process of claim 1, wherein the start-up phase of step (a) has a duration of 2 hours to 20 hours.

3. (Canceled).

4. (Previously presented) The process of claim 1, wherein the reaction temperature in step (a) is at least 1°C higher than the reaction temperature in step (b).

5. (Previously presented) The process of claim 4, wherein the reaction temperature in step (a) is 1.5 to 4°C higher than the reaction temperature in step (b).

6. (Previously presented) The process as claimed in claim 4, wherein the reaction temperature in step (b) is in a range bounded by an upper limit given by equation I

$$T_{RI} = 170 + \frac{6d'}{0.84 - d'} \qquad (I)$$

and a lower limit given by equation II

$$T_{RN} = 173 + \frac{7.3d'}{0.837 - d'} \qquad (II)$$

wherein,

T_{RH} is a maximum reaction temperature in °C

T_{RN} is a minimum reaction temperature in °C

d' is a value of a density of the polymer to be produced.

7. (Previously presented) The process of claim 1, wherein the melt flow rate is regulated by hydrogen concentration in the reactor.

8. (Previously presented) The process of claim 1, wherein the melt flow rate is regulated by a monomer partial pressure in the reactor.

9. (Previously presented) The process of claim 1, wherein the polyolefin is a homopolymer or copolymer of ethylene.

10. (Canceled).

11. (Currently amended) A process for an olefin polymerization comprising (a) starting up the polymerization reaction in a gas-phase fluidized-bed reactor using a catalyst comprising a metallocene to produce a start-up polyolefin having a melt flow rate greater than 4.5 g/10 min; and (b) continuing the polymerization reaction and gradually decreasing the melt flow rate of the polyolefin to less than 4 g/10 min, wherein the melt flow rate is measured at 2.16 kg and 190°C in accordance with ISO 1133, and wherein said start-up phase of step (a) has a duration of 30 minutes to 30 hours, ~~The process as claimed in claim 1,~~ wherein the metallocene is selected from bis(1-methyl-3-butylcyclopentadienyl)zirconium dichloride or bisindenylzirconium dichloride.

12. (Previously presented) The process of claim 1, wherein an alkylaluminoxane is used as an activating compound.

13. (New) The process of claim 11, wherein the start-up phase of step (a) has a duration of 2 hours to 20 hours.

14. (New) The process of claim 11, wherein the reaction temperature in step (a) is at least 1°C higher than the reaction temperature in step (b).

15. (New) The process of claim 14, wherein the reaction temperature in step (a) is 1.5 to 4°C higher than the reaction temperature in step (b).

16. (New) The process of claim 11, wherein the melt flow rate is regulated by hydrogen concentration in the reactor.

17. (New) The process of claim 11, wherein the melt flow rate is regulated by a monomer partial pressure in the reactor.

18. (New) The process of claim 11, wherein the polyolefin is a homopolymer or copolymer of ethylene.